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REMARKS

In view of the following discussion, the Applicants submit that none of the claims now pending in the application is anticipated under the provisions of 35 U.S.C. §102 or is made obvious under the provisions of 35 U.S.C. §103. Thus, the Applicants believe that all of these claims are now in allowable form.

I. OBJECTION TO THE SPECIFICATION

The Examiner has objected to the Abstract for inclusion of certain phrases. In response, the Applicants have amended the Abstract, in accordance with the Examiner's request, to remove the phrases "the present invention" and "comprises". Thus, the Applicants respectfully submit that the Abstract, as amended, is now in acceptable form.

II. REJECTION OF CLAIMS 1, 2, 6, 8-12, 13 15, 16-20, 24, 26, 27, 28 AND 30 UNDER 35 U.S.C. § 102**1. Claims 1, 6, 8, 10, 12, 16-18, 26, 27 and 30**

Claims 1, 6, 8, 10, 12, 16-18, 26, 27 and 30 stand rejected as being anticipated by the Hatada et al. patent (U.S. Patent No. 5,365,402, issued November 15, 1994, hereinafter "Hatada"). In response, the Applicants have amended independent claims 1, 12, 26 and 30, from which claims 6, 8, 10, 16-18 and 27 depend, in order to more clearly recite aspects of the present invention.

The Examiner's attention is directed to the fact that Hatada fails to teach, show or suggest sealing a perimeter edge of a fluid-based thermal interface with a gasket or containment pad, as positively claimed by the Applicants. Specifically, Applicants' independent claims 1, 12, 26 and 30, as amended, recite:

1. A thermal interface comprising:
a thermally conductive fluid;
a flexible enclosure for confining the thermally conductive fluid; and
at least one containment pad surrounding a perimeter edge of the enclosure. (Emphasis added)

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12. An integrated circuit device comprising:
at least one heat source;
at least one heat sink positioned in proximity to the at least one heat source; and
at least one thermal interface positioned between the at least one heat source and the at least one heat sink, the thermal interface comprising:
a thermally conductive fluid;
an enclosure for confining the thermally conductive fluid, wherein at least one surface of the enclosure is flexible and the enclosure is in thermal contact with both the at least one heat source and the at least one heat sink; and
at least one flexible gasket sealing a perimeter around the at least one heat source and the at least one heat sink. (Emphasis added)
26. Method for facilitating heat transfer from a heat source to a heat sink, the method comprising the steps of:
providing a thermally conductive fluid between the heat source and the heat sink, said thermally conductive fluid being in thermal contact with both the heat source and the heat sink; and
enclosing the thermally conductive fluid in a thermally conductive enclosure, wherein at least a portion of the enclosure is flexible, and wherein the step of enclosing the thermally conductive fluid comprises enclosing the fluid in a cavity formed between the heat source and the heat sink, the cavity being sealed around a perimeter by a flexible gasket. (Emphasis added)
30. Method for assembling a multi-chip integrated circuit device comprising the steps of:
assembling two or more integrated circuit chips on a substrate;
placing a thermal interface in contact with each of the two or more integrated circuit chips, the thermal interface comprising:
a thermally conductive fluid;
a flexible enclosure for confining the thermally conductive fluid; and
at least one containment pad surrounding a perimeter edge of the enclosure; and
placing a heat sink in thermal contact each of the two or more integrated circuit chips. (Emphasis added)

As the Examiner acknowledges on page 6 of the Office Action, Hatada does not teach a gasket or containment pad surrounding the perimeter edge of the enclosure.

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Therefore, Applicants respectfully submit that independent claims 1, 12, 26 and 30 are clearly patentable and not anticipated by Hatada. Furthermore, dependent claims 6, 8, 10, 16-18 and 27 depend, either directly or indirectly, from claims 1, 12 and 26 and recite additional limitations. As such, and for at least the exact same reason set forth above, the Applicants submit that claims 6, 8, 10, 16-18 and 27 are also patentable and not anticipated by Hatada. Accordingly, the Applicants respectfully request the rejection of claims 1, 6, 8, 10, 12, 16-18, 26, 27 and 30 under 35 U.S.C. § 102 be withdrawn.

2. Claims 12, 17, 20, 24, 26, 28 and 30

Claims 12, 17, 20, 24, 26, 28 and 30 stand rejected as being anticipated by the Malhammar application (U.S. Patent Application Publication No. 2002/0088805, published July 11, 2002, hereinafter "Malhammar"). In response, the Applicants have amended independent claims 12, 26 and 30, from which claims 17, 20, 24 and 28 depend, in order to more clearly recite aspects of the present invention.

The Examiner's attention is directed to the fact that Malhammar, like Hatada, fails to teach, show or suggest sealing a perimeter edge of a fluid-based thermal interface with a gasket or containment pad, as positively claimed by the Applicants in independent claims 12, 26 and 30, recited above. Thus, claims 12, 26 and 30 are not anticipated by Malhammar.

Dependent claims 17, 20, 24 and 28 depend, either directly or indirectly, from claims 12, 26 and 30 and recite additional limitations therefor. As such, and for at least the exact same reasons set forth above, the Applicants submit that claims 17, 20, 24 and 28 are also patentable and not anticipated by Malhammar. Accordingly, the Applicants respectfully request the rejection of claims 12, 17, 20, 24, 26, 28 and 30 under 35 U.S.C. § 102 be withdrawn.

3. Claims 12 and 15

Claims 12 and 15 stand rejected as being anticipated by the Sen et al. application (U.S. Patent Application Publication No. 2004/0074630, published April 22, 2004, hereinafter "Sen"). In response, the Applicants have amended independent claim

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12, from which claim 15 depends, in order to more clearly recite aspects of the present invention.

The Examiner's attention is directed to the fact that Sen, like Malhammar and Hatada, fails to teach, show or suggest sealing a perimeter edge of a fluid-based thermal interface with a gasket or containment pad, as positively claimed by the Applicants in independent claim 12, recited above. Thus, claim 12 is not anticipated by Sen.

Dependent claim 15 depends directly from claim 12 and recites additional limitations therefor. As such, and for at least the exact same reasons set forth above, the Applicants submit that claim 15 is also patentable and not anticipated by Sen. Accordingly, the Applicants respectfully request the rejection of claims 12 and 15 under 35 U.S.C. § 102 be withdrawn.

4. Claims 1, 8-11, 12, 17-19, 24, 26 and 27

Claims 1, 8-11, 12, 17-19, 24, 26 and 27 stand rejected as being anticipated by the Ulrich patent (U.S. Patent No. 4,563,375, issued January 7, 1986, hereinafter "Ulrich"). In response, the Applicants have amended independent claims 1, 12 and 26, from which claims 8-11, 17-19, 24 and 27 depend, in order to more clearly recite aspects of the present invention.

The Examiner's attention is directed to the fact that Ulrich, like Hatada, Malhammar and Sen, fails to teach, show or suggest sealing a perimeter edge of a fluid-based thermal interface with a gasket or containment pad, as positively claimed by the Applicants in independent claims 1, 12 and 26, recited above. Thus, claims 1, 12 and 26 are not anticipated by Ulrich.

Dependent claims 8-11, 17-19, 24 and 27 depend, either directly or indirectly, from claims 1, 12 and 26 and recite additional limitations therefor. As such, and for at least the exact same reasons set forth above, the Applicants submit that claims 8-11, 17-19, 24 and 27 are also patentable and not anticipated by Ulrich. Accordingly, the Applicants respectfully request the rejection of claims 1, 8-11, 12, 17-19, 24, 26 and 27 under 35 U.S.C. § 102 be withdrawn.

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5. Claims 1, 2, 12 and 13

Claims 1, 2, 12 and 13 stand rejected as being anticipated by the Danielson patent (U.S. Patent No. 4,997,032, issued March 5, 1991, hereinafter "Danielson"). In response, the Applicants have amended independent claims 1 and 12, from which claims 2 and 13 respectively depend, in order to more clearly recite aspects of the present invention.

The Examiner's attention is directed to the fact that Danielson, like Hatada, Malhammar, Sen and Ulrich, fails to teach, show or suggest sealing a perimeter edge of a fluid-based thermal interface with a gasket or containment pad, as positively claimed by the Applicants in independent claims 1 and 12, recited above. Thus, claims 1 and 12 are not anticipated by Danielson.

Dependent claims 2 and 13 depend directly from claims 1 and 12, respectively, and recite additional limitations therefor. As such, and for at least the exact same reasons set forth above, the Applicants submit that claims 2 and 13 are also patentable and not anticipated by Danielson. Accordingly, the Applicants respectfully request the rejection of claims 1, 2, 12 and 13 under 35 U.S.C. § 102 be withdrawn.

III. REJECTION OF CLAIMS 3-5, 7, 11, 14, 19, 21-23, 25, 27 AND 29 UNDER 35 U.S.C. § 103**1. Claims 11 and 19**

Claims 11 and 19 stand rejected as being made obvious by Ulrich. In response, the Applicants have amended independent claims 1 and 12, from which claims 11 and 19 respectively depend, in order to more clearly recite aspects of the present invention.

The Examiner's attention is directed to the fact that Ulrich, as discussed above, fails to teach, show or suggest sealing a perimeter edge of a fluid-based thermal interface with a gasket or containment pad, as positively claimed by the Applicants in independent claims 1 and 12, recited above. Thus, claims 1 and 12 are not made obvious by Ulrich.

Dependent claims 11 and 19 depend directly from claims 1 and 12, respectively,

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and recite additional limitations therefor. As such, and for at least the exact same reasons set forth above, the Applicants submit that claims 11 and 19 are also patentable and not made obvious by Ulrich. Accordingly, the Applicants respectfully request the rejection of claims 11 and 19 under 35 U.S.C. § 103 be withdrawn.

2. Claims 3 and 14

Claims 3 and 14 stand rejected as being made obvious by Danielson. In response, the Applicants have amended independent claims 1 and 12, from which claims 3 and 14 respectively depend, in order to more clearly recite aspects of the present invention.

The Examiner's attention is directed to the fact that Danielson, as discussed above, fails to teach, show or suggest sealing a perimeter edge of a fluid-based thermal interface with a gasket or containment pad, as positively claimed by the Applicants in independent claims 1 and 12, recited above. Thus, claims 1 and 12 are not made obvious by Danielson.

Dependent claims 3 and 14 depend directly from claims 1 and 12, respectively, and recite additional limitations therefor. As such, and for at least the exact same reasons set forth above, the Applicants submit that claims 3 and 14 are also patentable and not made obvious by Danielson. Accordingly, the Applicants respectfully request the rejection of claims 3 and 14 under 35 U.S.C. § 103 be withdrawn.

3. Claims 4, 5, 7, 21-23, 25, 27 and 29

Claims 4, 5, 7, 21-23, 25, 27 and 29 stand rejected as being made obvious by Hatada in view of the Calmidi et al. patent (U.S. Patent No. 6,665,186, issued December 16, 2003, hereinafter "Calmidi"). Claims 4, 21-23 and 29 have been cancelled without prejudice. The remainder of the rejection is respectfully traversed.

Calmidi is a § 102(e) reference and was owned or subject to an obligation of assignment to a common entity, International Business Machines Corporation, at the time the invention of the present Application was made. A commonly assigned § 102(e)

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reference is not a proper basis for an obviousness type rejection. See 35 U.S.C. § 103(c). Accordingly, the Applicants submit that the obviousness type rejection under 35 U.S.C. § 103(a) is improper, and respectfully requests withdrawal of the rejection to claims 4, 5, 7, 21-23, 25, 27 and 29 thereunder.

IV. NEW CLAIMS

The Applicants have added new claims 31 and 32. New claim 31 presents original claim 22 in independent form, and new claim 32 depends from claim 31 and includes the limitations of original claim 23.

V. CONCLUSION


Thus, the Applicants submit that all of the presented claims fully satisfy the requirements of 35 U.S.C. §102 and 35 U.S.C. §103. Consequently, the Applicants believe that all of the presented claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring the issuance of a final action in any of the claims now pending in the application, it is requested that the Examiner telephone Mr. Kin-Wah Tong, Esq. at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

10/11/05
Date

Patterson & Sheridan, LLP
595 Shrewsbury Avenue
Shrewsbury, New Jersey 07702


Kin-Wah Tong, Attorney
Reg. No. 39,400
(732) 530-9404